



JMU Research, Scholarship & Creative Endeavors

Volume 5, Issue 5

Please join us in congratulating Anthony Tongen, who was recently selected to serve as JMU's Vice Provost for Research, Scholarship, and Creative Endeavors. Tongen continues in this role, having been previously appointed to the interim Vice Provost for Research and Scholarship position in July 2018.

We'd also like to recognize Keith Holland, who assumed the position of Associate Vice Provost for Research, Scholarship, and Creative Endeavors. Holland also served the previous two years in the interim vice provost position. Stay tuned for additional staffing announcements!

In support of James Madison University's efforts to build a more inclusive and just learning environment for our students, alumni, faculty, staff, and community members, we are sharing a [list of resources hosted by the JMU Libraries](#) to help educate "on the past to understand the present, to amplify and listen to the voices of those affected by racism, and to confront the current and ongoing injustices in the United States."

As JMU prepares to re-open campus for the fall semester in a safe and responsible way, we are also sharing the [latest university messaging focused on the COVID-19 pandemic](#).

Office of Research & Scholarship
James Madison University



JMU Creative Services captured these photos of the Harrisonburg Farmers Market during their [virtual operation period earlier this year](#). The JMU X-labs, faculty, students, and community partners worked as a team to figure out the logistics necessary to keep the market in business during the early stages of the COVID-19 pandemic.

Faculty Grant Awards

For a monthly listing of recent faculty grant awards, please [visit the JMU Office of Sponsored Programs website](#). Here are some notable awards from April and May 2020:

Keith Holland (Research & Scholarship), C.K. Lee (Management), and Sam Morton (Engineering) received \$53,630 from GO Virginia to identify the best cultivars and fit hemp industries for the Shenandoah Valley and coordinate efforts between James Madison University, Virginia Tech, Virginia State University, Virginia Commonwealth University, and the University of Virginia.

Deborah Kipps-Vaughan (Graduate Psychology) received \$100,000 from the Substance Abuse and Mental Health Services Administration (SAMHSA) to implement a two-year program to develop, implement, and evaluate an inter-professional substance use disorder training program to teach health and behavioral health professionals, faculty, students, and community educational partners the needed skills to provide evidenced-based screening, intervention, and treatment referral for at risk individuals.

Shaun Mooney (Valley Scholars) received \$45,000 to support an additional JMU graduate student each year to ensure enhancements to the Valley Scholars Program are achieved.

George Vidal (Biology) received \$210,000 from the National Institutes of Health as the recipient of a Mentored Research Scientist Development Award (KO1) to understand the mechanism and behavioral consequences of integrin beta 3 in regulating the development of excitatory cortical circuitry in vivo.

Chemistry Students Publish Paper on Improving Teaching and Learning Practices in STEM Classrooms

Barbara Reisner, faculty in chemistry and biochemistry, [published a paper in the *Journal of Chemical Education*](#) that included three JMU students as co-authors. “I’ve Been Given COPUS Data on My Chemistry Class...Now What?” explores the use of Classroom Observation Protocol for Undergraduate STEM (COPUS) to better understand how time is used during a class period, and as explained in the paper, “provides a baseline for considering how instructional practices could be changed to increase learning in our chemistry courses.” This happens through class observations that record what actions take place in two-minute intervals. Examples of classroom observations include: taking a test or quiz, a student asking a question in front of the class, or a professor lecturing or guiding student work during an activity. This data can be represented visually and provide a professor with “different perspectives on the activities that occur in our chemistry classrooms.”



One of the student co-authors, Cole Pate, developed a video – “Come for the content, stay

for the community” – that “describes how IONiC provides a supportive community and tools to help faculty improve their teaching,” commented Reisner. The video received a Facilitator’s Choice Award during the 2020 STEM for All Video Showcase, an NSF-funded effort that highlights innovations in STEM education.

Reisner, her undergraduates, and her collaborators on the project research team for IONiC ([Interactive Online Network of Inorganic Chemists](#)), are developing this effort into a professional development tool so faculty can look at instructional change over time. Reisner is a member of the IONiC leadership Council, and this work is funded as part of the NSF grant Collaborative Research: Improving Inorganic Chemistry Education Through a Community-Developed Student-Centered Curriculum (NSF DUE 1725822, 1726162, and 1726133).

NSF Awards Cross-disciplinary Grant to Faculty in Education and Engineering

JMU faculty members Daniel Castaneda (Department of Engineering) and Joi Merritt (Department of Early, Elementary, and Reading Education) received an NSF (National Science Foundation) award for the project -- Research Initiation: Infusing Culturally Relevant Pedagogy (CRP) at the Start of the Engineering Mechanics Curriculum.

Castaneda commented, “JMU fosters a great community for these types of cross-disciplinary collaborations. CFI (Center for Faculty Innovation) -- jmUDESIGN provided the connection to Dr. Merritt, and CFI – ETS (Engaged Teacher-Scholar) further flushed out the proposal details in a supportive cohort of SOTL researchers. It’s exciting for me to create transdisciplinary knowledge with Dr. Merritt, and I’m excited for future collaborations at JMU.”

Merritt added, “I began my career as a chemical engineer and getting to connect my work in education in a cross-disciplinary project is exciting. JMU has so many opportunities to learn and grow and I am excited that a cross-disciplinary collaboration opportunity evolved through my work with CFI’s jmUDESIGN. I am looking forward to working with Dr. Castaneda.”

Project Abstract

Engineering students are entering the profession at a time when technical challenges are increasingly complex and societal inequities abound. There are countless examples, though, where the engineering profession has not met the needs of this increasingly diverse society. In one example, facial recognition security software is failing to uniquely identify African-American and Asian faces at rates of 10 to 100 times higher than Caucasian faces. In another, artificial intelligence systems misconstrue disabled persons as ‘obstacles’ rather than as ‘humans’ in algorithmic decisions in collision avoidance scenarios. A recurring theme in these examples is engineers designing artifacts that meet the needs of the majority while failing to meet the needs of underrepresented groups. These inequities are not intentionally fueled by the engineering profession alone; rather, they are fueled by many of the professions – engineering among them – simply not knowing or acknowledging the full ramification of their decisions and decision-making processes toward non-dominant groups. This shortcoming in mindset must be challenged so that the United States can uncover the hidden opportunity costs associated with broadening participation and perspectives in curricula, design processes, and professional practices. This project will generate evidence toward a teaching practice that seeks to broaden students’ mindset to be more critical of societal inequities in the context of an introductory engineering mechanics course. The study will be led by a PI who is new to the field of engineering formation research, and the PI will be mentored and guided through research methods by an education researcher, which aligns with the RIEF program’s goals of initiating new researchers into engineering formation research that seeks to meet the needs of the dynamic and diverse workforce. Undertaking such research holds the promise of realizing new teaching practices that influence both instructors’ and students’ ability to emerge as change agents; to advocate and actualize inclusive practices in the classroom and in the workplace, which helps to respond to the needs of an increasingly complex and diverse society.

JMU Team Soars at Wind Competition



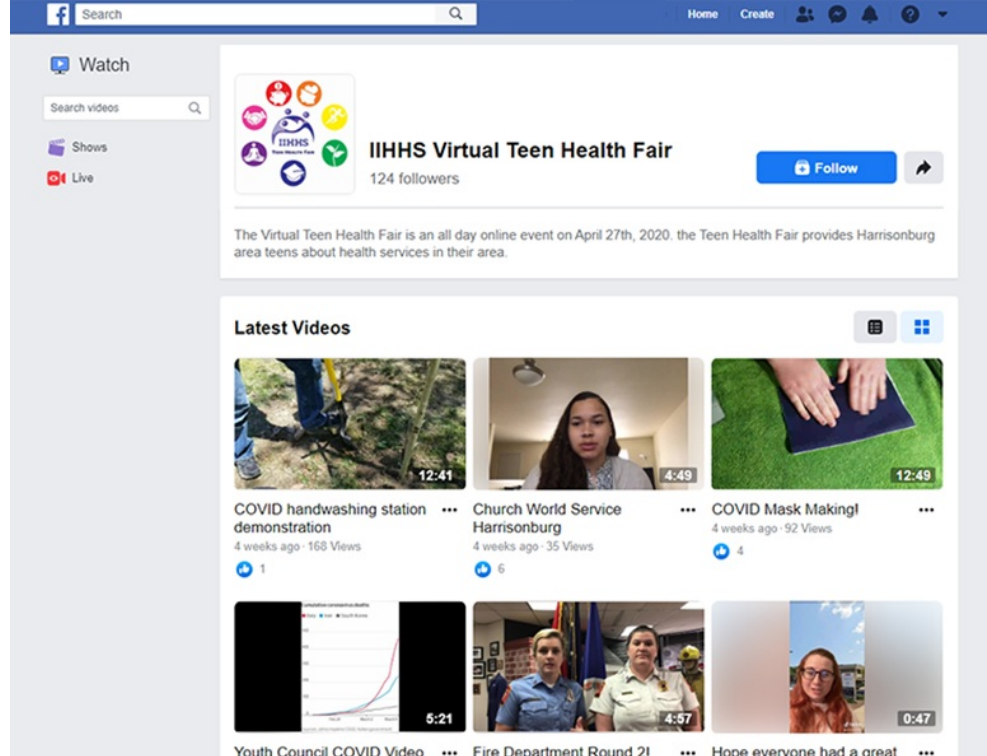
From University Communications:

The U.S. Department of Energy announced that [JMU placed first in the project development category](#) of the 2020 Collegiate Wind Competition, topping 11 other universities from around the country. In 2018, a JMU team finished first in the business portion of the competition sponsored by the U.S. DOE and the National Renewable Energy Laboratory.

"We couldn't be more proud of these hard-working young men and women," said Jonathan Miles, professor of integrated science and technology and one of three advisors to the team. "Mostly seniors, they operated under extraordinary and imperfect conditions while juggling competing priorities."

This year's competitors were challenged to design a turbine to withstand continuous winds of 22–25 meters per second and to research and develop a plan for a hypothetical 100-megawatt wind plant in eastern Colorado. JMU's wind plant design was judged the best; the JMU turbine design placed fifth.

CHBS Students Host Virtual Teen Health Fair



From Creative Services:

Each year, JMU's Institute for Innovation in Health and Human Services (IIHHS) hosts a teen health fair at Harrisonburg High School. The event provides a wealth of information about health services available to local teens.

When the coronavirus pandemic swept the nation this year, the status of the annual event was up in the air. Fortunately, social work major Callie Phillips was able to use her practicum experience to [transform the fair into a virtual event](#). Demonstrating the interdisciplinary nature of the event, student interns Lola Beste (psychology) and Melissa Yeboah (health services administration) also added their diverse talents to the project.

Eventually, 14 agencies participated during the live event representing agencies ranging from the Church World Service to the Harrisonburg/Rockingham Community Service Board. Public agencies such as the Harrisonburg City Fire Department and Harrisonburg Health Department also created videos.

Biology Professor Receives Largest NIH Grant to an Individual Scientist at JMU

From University Communications:

George Vidal, an assistant professor of biology, has received \$1 million from the National Institutes of Neurological Disorders and Stroke, a part of the National Institutes of Health, to research the function of an autism risk gene in the developing brain. The grant is the [largest research grant ever given by the National Institutes of Health to a single scientist at JMU](#). The grant will support Vidal for up to five years as he investigates how integrin beta 3, a gene implicated in autism, helps form brain circuits properly.

"We are so excited for George to receive this award, which reflects the truly outstanding caliber of his research," said Cynthia Bauerle, dean of the College of Science and Mathematics. "As a primarily undergraduate research university, this really sets the bar for the research that our faculty and students are engaged in."

"I could not have achieved this major award without mentorship from my faculty colleagues at JMU and beyond, and from the outstanding work of my JMU undergraduate research team," Vidal said. "Their dedicated work is how we discovered that integrin beta 3

is a worthwhile autism risk gene to study. I have been privileged to work with my students to discover knowledge that can be used to combat neurodevelopmental disorders."

English Class Creates Podcast Highlighting Immigrant Experiences



JMU Creative Media produced this video profiling the Harrisonburg 360 Podcast effort

During the spring 2020 semester, College of Arts & Letters faculty member Allison Fagan [challenged and guided students to develop a digital project](#) focused on highlighting the experiences (both past and present) of immigrant populations in the Shenandoah Valley. Part of the English 360 course – Introduction to Ethnic American Literature (semester topic: Immigrant Narratives), the students consulted with experts from JMU Libraries and learned new forms of storytelling to produce a podcast series – [Harrisonburg 360: Real People. Real Stories. One Community.](#)

Professor Fagan commented, "In many of my English courses, the focus is on storytelling by individuals and groups of people whose voices have historically been marginalized because of their race or citizenship status. We talk a lot about who has the power to tell a story, as well as who has the power to make sure that story is heard (or, in too many cases, not heard). The Special Collections at JMU Libraries has always enabled students to have a deeper understanding of those concepts, and in this case, it was the presence of local immigrant oral histories right at our fingertips that made the project possible. Starting with existing oral histories, students were able to explore and then learn by example, in turn conducting their own oral history interviews with Harrisonburg immigrants. In putting together their podcast episodes, mixing past and present recordings, the ultimate goal was for students to learn the difficult contours of agency in storytelling. They had to think about how they might amplify the voices of immigrant storytellers without speaking for them. I believe they accomplished that and more."

One student said of the project, "The course content is something that affected me far beyond the academic scale. It had been quite some time since I felt so devoted to an assignment. ...I deeply cared about doing well and giving the stories the attention they deserve."

This project is part of a larger, multidisciplinary effort at JMU --[Immigrant Harrisonburg](#), which endeavors to "investigate the lives of immigrants living in the Shenandoah Valley and beyond."

Business Students Deliver Supply Chain Insights to Local Brewery

From COB Marketing & Communications:

Ben Trumbo, the head brewer at Pale Fire Brewing Company in Harrisonburg, has a problem. As a brewer, he is selective about hops, one of the most important ingredients in beer. While some aspects of the art of brewing have changed, the need for different varieties of high-quality hops to create palate pleasing beers remains. And that is Trumbo's problem: when hops have to be ordered years in advance to allow time for cultivation, how can he have enough on hand to ensure company growth without having to pay added storage fees for excess?

So Trumbo met with management department head Laura Leduc and professor Mert Tokman, who decided that [students from the global supply chain management \(GSCM\) minor program could help find a solution](#). Tokman assembled an interdisciplinary group of supply chain students for an independent study course and the search for data-driven answers began.

The results provided in the team's report are encouraging for Trumbo. "The report and accompanying spreadsheet additions have provided excellent insight into not only the quantitative value of our hop storage fee situation, but into other approaches that can mitigate the liabilities associated with these fees," he says. "The team also did an excellent job of integrating the spreadsheet additions into Pale Fire's existing hop planning spreadsheets, saving valuable time."

From an academic point of view, Tokman believes that "these types of hands on experiences are invaluable for students where they can apply what they learn in classrooms to real life supply chain problems. Not to mention, it will be a very attractive line on their resumes that would provide an extensive talking point in job interviews."

Computer Science Hosts Summer Camp for Harrisonburg High School Students

From CISE Marketing Communications:

Due to the COVID-19 pandemic, all JMU led in-person summer camps have been canceled this summer. However, that didn't stop the Computer Science Department and the Harrisonburg CWS Refugee Resettlement Office from offering a [virtual camp for 18 students, primarily refugee students from Harrisonburg High School](#). "Our faculty are deeply committed to expanding access to computer science education," says Sharon Simmons, computer science department head. "COVID-19 posed some significant challenges, but the faculty were determined to come through with the camp for these students."

During the two-week-long camp, held June 1-12, students learned the Python programming language and covered topics such as cybersecurity, networking, data processing, and creating dynamic websites. Guest speakers included local tech entrepreneurs, computer engineers who create medical devices, computer scientists who've studied bias in algorithms, and scientists using programming to look at DNA markers in people who are more susceptible to severe COVID.

Shenandoah Valley Choral Society Receives Arts Award

Circle Of Excellence in the Arts Award

FORBES CENTER
FOR THE PERFORMING ARTS
JAMES MADISON UNIVERSITY

COLLEGE OF
VISUAL AND
PERFORMING ARTS
JAMES MADISON UNIVERSITY

arts council
of the valley

JMU's College of Visual and Performing Arts, the Forbes Center for the Performing Arts, and the Arts Council of the Valley recognized the Shenandoah Valley Choral Society with the 2020 [Circle of Excellence in the Arts Award](#). Executive Director of the Forbes Center, Regan Byrne, commented, "The Shenandoah Valley Choral Society is a major contributor to the artistic spirit of the Shenandoah Valley, and it is an honor to present them with this year's Circle of Excellence in the Arts Award."

James Madison University | Research & Scholarship | www.jmu.edu/research

